

Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, and for other purposes; which was ordered to lie on the table; as follows:

On page 497, strike line 11 and insert the following:

(1) For Exploration, \$6,555,400,000.

On page 497, strike line 13 and insert the following:

(3) For Science, \$7,301,000,000.

On page 497, strike line 15 and insert the following:

(5) For Space Technology, \$1,100,000,000.

On page 497, strike line 21 and insert the following:

plance and Restoration, \$390,278,000.

On page 503, strike lines 6 and 7 and insert the following:

gress that next-generation advanced spacesuits and associated EVA technologies are critical technologies for human space exploration and use of

On page 503, line 12, insert “and associated EVA technologies” after “advanced spacesuits”.

On page 510, line 9, insert “THE ” before “INTERNATIONAL SPACE STATION”.

On page 512, between lines 7 and 8, insert the following:

SEC. 2621A. TRANSITION STRATEGY FOR THE INTERNATIONAL SPACE STATION.

(a) IN GENERAL.—Not later than 300 days after the date of the enactment of this division, the Administrator shall submit to the appropriate committees of Congress a strategy that—

(1) describes the manner in which the Administration will ensure a stepwise transition to an eventual successor platform consistent with the ISS Transition Principles specified in the International Space Station Transition Report issued pursuant to section 5011(c)(2) of title 51, United States Code, on March 30, 2018;

(2) includes capability-driven milestones and timelines leading to such a transition;

(3) takes into account the importance of maintaining workforce expertise, core capabilities, and continuity at the centers of the Administration, including such centers that are primarily focused on human spaceflight;

(4) considers how any transition described in paragraph (1) affects international and commercial partnerships;

(5) presents opportunities for future engagement with—

(A) international partners;

(B) countries with growing spaceflight capabilities, if such engagement is not precluded by other provisions of law;

(C) the scientific community, including the microgravity research community;

(D) the private sector; and

(E) other United States Government users; and

(6) promotes the continued economic development of low-Earth orbit.

(b) IMPLEMENTATION PLAN.—The strategy required by subsection (a) shall include an implementation plan describing the manner in which the Administration plans to carry out such strategy.

(c) REPORT.—Not less frequently than biennially, the Administrator shall submit to the appropriate committees of Congress a report on the implementation of the strategy required by subsection (a).

On page 523, line 8, strike “2626” and insert “2625”.

On page 526, line 16, strike “2626” and insert “2625”.

On page 527, line 11, strike “2627” and insert “2626”.

On page 535, between lines 15 and 16, insert the following:

SEC. 2628A. HUMAN SPACE FACILITIES IN AND BEYOND LOW-EARTH ORBIT.

(a) SENSE OF CONGRESS.—It is the sense of Congress that human space facilities play a significant role in the long-term pursuit by the Administration of the exploration goals under section 202(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312(a)).

(b) REPORT ON CREWED AND UNCREWED HUMAN SPACE FACILITIES.—

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this division, the Administrator shall submit to the appropriate committees of Congress a report on the potential development of 1 or more human space facilities.

(2) CONTENTS.—With respect to the potential development of each human space facility referred to in paragraph (1), the report required under such paragraph shall include a description of the following:

(A) The capacity of the human space facility to advance, enable, or complement human exploration of the solar system, including human exploration of the atmosphere and the surface of celestial bodies.

(B) The role of the human space facility as a staging, logistics, and operations hub in exploration architecture.

(C) The capacity of the human space facility to support the research, development, testing, validation, operation, and launch of space exploration systems and technologies.

(D) The importance of workforce expertise and core capabilities at NASA centers, including NASA centers that are primarily focused on human spaceflight, in the development of structures and systems for each human space facility.

(E) Opportunities and strategies for commercial operation or public-private partnerships with respect to the human space facility that protect taxpayer interests and foster competition.

(F) The role of the human space facility in encouraging further crewed and uncrewed exploration investments.

(G) The manner in which the development and maintenance of the International Space Station would reduce the cost of, and time necessary for, the development of the human space facility.

On page 551, strike lines 17 and 18 and insert the following:

2640(b)(2)(A) of the National Aeronautics and Space Administration Authorization Act of 2021.

On page 583, between lines 2 and 3, insert the following:

(e) REPORT ON RESEARCH AND DEVELOPMENT RELATING TO LIFE-SUSTAINING TECHNICAL SYSTEMS AND PLAN FOR ACHIEVING POWER SUPPLY.—Not later than 1 year after the date of the enactment of this division, the Administrator shall submit to the appropriate committees of Congress—

(1) a report on the research and development of the Administration relating to technical systems for the self-sufficient sustenance of life in and beyond low-Earth orbit; and

(2) a 10-year plan for achieving a power supply on the Moon that includes—

(A) a consideration of the resources necessary to accomplish such plan;

(B) collaboration and input from industry and the Department of Energy;

(C) the use of a variety of types of energy, including solar and nuclear; and

(D) a detailed description of the resources necessary for the Administration to build a lunar power facility with human-tended maintenance requirements during the subsequent 10-year period.

SA 1969. Ms. HASSAN (for herself and Ms. ERNST) submitted an amendment intended to be proposed by her to the bill S. 1260, to establish a new Directorate for Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, and for other purposes; which was ordered to lie on the table; as follows:

At the appropriate place, insert the following:

SEC. _____. VIRTUAL CURRENCIES AND THEIR GLOBAL USE.

(a) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary of the Treasury, in consultation with the Attorney General, the United States Trade Representative, the Board of Governors of the Federal Reserve System, the Office of the Director of National Intelligence, and any other agencies or departments that the Secretary of the Treasury determines are necessary, shall submit to the Committee on Finance, the Committee on Banking, Housing, and Urban Affairs, the Committee on Foreign Relations, and the Committee on the Judiciary of the Senate and the Committee on Ways and Means, the Committee on Foreign Affairs, the Committee on the Judiciary, and Committee on Financial Services of the House of Representatives a report on virtual currency and their global use, which shall—

(1) assess how foreign countries use and mine virtual currencies, including identifying the largest state and private industry users and miners of virtual currency, policies foreign countries have adopted to encourage virtual currency use and mining, and how foreign countries could be strengthened or undermined by the use and mining of cryptocurrencies within their borders;

(2) identify, to the greatest extent practicable, the types and dollar value of virtual currency mined for each of fiscal years 2016 through 2022 within the United States and globally, as well as within the People's Republic of China and within any other countries the Secretary of the Treasury determines are relevant; and

(3) identify vulnerabilities, including those related to supply disruptions and technology availability of the global microelectronic supply chain, and opportunities with respect to virtual currency mining operations.

(b) CLASSIFIED ANNEX.—The report required under subsection (a) shall be submitted in unclassified form, but may contain a classified annex.

SA 1970. Mr. MANCHIN submitted an amendment intended to be proposed to amendment SA 1502 proposed by Mr. SCHUMER to the bill S. 1260, to establish a new Directorate for Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, and for other purposes; which was ordered to lie on the table; as follows:

On page 80, line 21, insert “and in consultation with the Secretary of Energy” after “Director”.

SA 1971. Mr. VAN HOLLEN (for himself and Ms. MURKOWSKI) submitted an amendment intended to be proposed by him to the bill S. 1260, to establish a new Directorate for Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, and for other purposes; which was ordered to lie on the table; as follows:

At the appropriate place, insert the following:

TITLE ____—NATIONAL FAB LAB NETWORK
SEC. ____ 1. SHORT TITLE.

This title may be cited as the “National Fab Lab Network Act of 2021”.

SEC. ____ 2. FINDINGS.

Congress finds the following:

(1) Scientific discoveries and technical innovations are critical to the economic and national security of the United States.

(2) Maintaining the leadership of the United States in science, technology, engineering, and mathematics will require a diverse population with the skills, interest, and access to tools required to advance these fields.

(3) Just as earlier digital revolutions in communications and computation provided individuals with the internet and personal computers, a digital revolution in fabrication will allow anyone to make almost anything, anywhere.

(4) These creations include elements of a typical household basket of goods (furnishings, apparel, food production equipment, shelter, transportation, education and communication, recreation, and other goods and services), personal technology, means for personal expression, the production of digital fabrication machinery, community design, and manufacturing capability.

(5) The Center for Bits and Atoms of the Massachusetts Institute of Technology (CBA) has contributed significantly to the advancement of these goals through its work in creating and advancing digital fabrication facilities, or “fab labs” in the United States and abroad.

(6) Such digital fabrication facilities may include MakerSpaces, Hackerspaces, and other creative spaces that use digital fabrication as a platform for education, innovation, entrepreneurship, personal expression, public access, and social impact.

(7) Such digital fabrication facilities provide a model for a new kind of national laboratory that operates as a network, linking local facilities for advanced manufacturing, providing universal access, cultivating new literacies, and empowering communities.

(8) The nonprofit Fab Foundation was established to support the growth of the international network of digital fabrication facilities, to amplify the educational, entrepreneurial, and social impacts of digital fabrication facilities, and to support the development of regional capacity building organizations to broaden impact as well as address local, regional, and global challenges through the use of digital fabrication technologies.

(9) A coordinated array of national public-private partnerships will be the most effective way to accelerate the provision of universal access to this infrastructure for workforce development, science, technology, engineering, and mathematics education, developing inventions, creating businesses, producing personalized products, and mitigating risks.

SEC. ____ 3. DEFINITION OF FAB LAB.

In this title, the term “fab lab” means a facility that—

(1) contains the range of capabilities required to create form and function from digital designs, including—

(A) computer-controlled machines for additive and subtractive fabrication processes;

(B) tools and components for manufacturing and programming electronic circuits;

(C) materials and methods for short-run production; and

(D) workflows for three-dimensional design and digitization; and

(2) is committed to supporting education, innovation, entrepreneurship, personal expression, self-sufficiency, and social impact for its community through digital fabrication.

SEC. ____ 4. ESTABLISHMENT.

There is hereby established a nonprofit corporation to be known as the “National Fab Lab Network” (in this title referred to as the “corporation”), which shall not be an agency or establishment of the United States Government. The corporation shall be subject to the provisions of this title, and, to the extent consistent with this title, to the District of Columbia Nonprofit Corporation Act (D.C. Code, section 29-501 et seq.).

SEC. ____ 5. GOALS AND ACTIVITIES.

(a) **GOALS.**—The goals of the corporation are as follows:

(1) To provide universal access to digital fabrication.

(2) To foster current and future fab labs.

(3) To create a national network of connected local fab labs to empower individuals and communities in the United States.

(4) To foster the use of distributed digital fabrication tools—

(A) to promote science, technology, engineering and math skills;

(B) to increase invention and innovation;

(C) to create businesses and jobs;

(D) to fulfill personal, professional, and community needs;

(E) to create value and mitigate harm;

(F) to increase self-sufficiency for individuals, households, and communities; and

(G) to align workforce development with new and emerging jobs.

(5) To provide a platform for education, research, and for catalyzing new methods in science, technology, engineering, and mathematics education, and introducing digital fabrication as an essential new literacy.

(6) To create new ways of educating the workforce that will enable workers to compete in a 21st century global marketplace.

(b) **ACTIVITIES.**—To attain the goals described in subsection (a), the corporation shall carry out activities, including the following:

(1) Seeking to establish a minimum of one fab lab in each Congressional District, prioritizing underserved communities.

(2) Seeking to establish additional labs within the network created under subsection (a)(3), in response to local demand, and to provide guidelines for their sustainable operation.

(3) Linking fab labs into a national network, and promoting further expansion of fab labs across the United States.

(4) Serving as a resource to assist diverse public and private stakeholders with the effective operation of fab labs, and the training of fab lab leaders and mentors.

(5) Maintaining a national registry of fab labs.

(6) Providing standards and protocols for connecting fab labs regionally, nationally, and globally.

(7) Assisting existing fab labs in producing additional fab labs.

SEC. ____ 6. MEMBERSHIP AND ORGANIZATION.

Except as provided in this title, eligibility for membership in the corporation and the rights and privileges of members shall be in accordance with the laws governing tax exempt organizations in the District of Columbia.

SEC. ____ 7. GOVERNING BODY.

(a) **IN GENERAL.**—Except as provided in subsection (b), directors, officers, and other staff of the corporation, and their powers and duties, shall be in accordance with the laws governing tax exempt organizations in the District of Columbia.

(b) **BOARD MEMBERSHIP.**—

(1) **COMPOSITION.**—The board of the corporation shall be composed of not fewer than 7 members and not more than 15 members.

(2) **REPRESENTATION.**—

(A) **IN GENERAL.**—The membership of the board of the corporation shall collectively represent the diversity of fab labs.

(B) **REQUIREMENT.**—At a minimum, the board of the corporation shall be composed of members from geographic regions across the United States, Tribal communities, educational and research institutions, libraries, nonprofit and commercial organizations, diverse demographic groups, and the Fab Foundation.

(C) **INDIVIDUAL REPRESENTATION.**—An individual member of the board of the corporation may represent more than one board role and additional roles may be added to reflect the diversity of the fab lab ecosystem.

(3) **SELECTION.**—The initial board of the corporation shall be chosen, in consultation with the Fab Foundation and in accordance with paragraph (2)(A), as follows:

(A) Two shall be appointed by the majority leader of the Senate.

(B) Two shall be appointed by the minority leader of the Senate.

(C) Two shall be appointed by the Speaker of the House of Representatives.

(D) Two shall be appointed by the minority leader of the House of Representatives.

SEC. ____ 8. POWERS.

The corporation may—

(1) coordinate the creation of a national network of local fab labs in the United States;

(2) issue guidelines for the sustainable operation of fab labs;

(3) issue standards and guidelines for fab labs;

(4) serve as a resource for organizations and communities seeking to create fab labs by providing information, assessing suitability, advising on the lab lifecycle, and maintaining descriptions of prospective and operating sites;

(5) accept funds from private individuals, organizations, government agencies, or other organizations;

(6) distribute funds to other organizations to establish and operate fab labs as members of the corporation;

(7) facilitate communication between other organizations seeking to join the corporation with operational entities that can source and install fab labs, provide training, assist with operations, account for spending, and assess impact;

(8) communicate the benefits available through membership in the corporation to communities and the public;

(9) facilitate and participate in synergistic programs, including workforce training, job creation, researching the enabling technology and broader impacts of such programs, and the production of civic infrastructure;

(10) develop processes and methods to mitigate risks associated with digital fabrication;